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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,731	05/23/2000	William Dean Bauman	DP-300043	4741

7590

07/01/2003

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EXAMINER

COMPTON, ERIC B

ART UNIT

PAPER NUMBER

3726

DATE MAILED: 07/01/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

EC

Office Action Summary

Application No.

09/576,731

Applicant(s)

BAUMAN ET AL.

Examiner

Eric B. Compton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration..
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>15</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of U.S. Patent 5,878,496 to Liu et al.

AAPA, as found on pages 1-6 of the specification, discloses a prior art process for forming a metal roller bearing comprising forming a steel blank by either warm forging, hot forging, cold forging, and machining. As shown in Figure 1, various grinding processes form the specific bearing surfaces of the blank.

However, AAPA do not disclose hard turning to form the inner and outer bearing surfaces.

Liu et al disclose forming a metal cylindrical bearing roller, consisting of the steps of:

obtaining a hardened metal cylindrical blank having end face surface, a lateral surface defining an outer diameter, and a centered circular bore, said bore having an inner surface defining an inner diameter (see Figure 3, Claim 7).

hard turning the surface of the blank to a specified outer diameter (Col. 8, lines 10-14). Liu et al teach turning the inner surface of the bore rather than grinding, but discuss other processes that may be utilized “such as facing, milling, boring, broaching, drilling, and other related techniques for material removal.” Col. 9, lines 39-41. Grinding and honing are disclosed as material removal process known to the inventors and thus are at least contemplated by the invention. Col. 1, line 45.

Regarding claim 1, it would have been obvious to one of ordinary skill in the art, at the time of invention, to have formed the cylindrical (metal roller) bearing of AAPA by hard turning the inner and outer bearing surfaces without grinding, in light of the teachings of Liu et al, in order to produce a bearing “eliminating rough machining, grinding and superfinishing [as] steps in the [conventional] production of the bearing race ...” Col. 9, lines 11-34). Note: this is precisely the motivation behind Applicant’s invention. See Specification, page 6, lines 17-20.

Regarding claim 2, it is inherent in process of Liu et al/AAPA that radial crown of a bearing is formed.

Regarding claim 3, AAPA discloses providing a steel blank formed by either forging or machining.

Regarding claim 4, AAPA notes that heat treating of the blank prior to finishing is known (see page 8, lines 11-15). Liu et al also note heat treatment of the workpiece.

Regarding claims 5-6, AAPA disclosed that it is known to forge the blank. Therefore, a flash piece is formed that must be subsequently removed. The prior art teaches grinding to finish the inner surface of the bore. This operation inherently will

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remove the flash. Liu et al teach turning the inner surface of the bore rather than grinding, but discuss other processes that may be utilized “such as facing, milling, boring, broaching, drilling, and other related techniques for material removal.” Col. 9, lines 39-41. Grinding and honing are disclosed as material removal process known to the inventors. Col. 1, line 45.

Regarding claim 7, Official Notice is taken that diamond-honing machinery is known in the art. See also Liu et al, Col. 5, lines 52+.

Regarding claim 8, AAPA notes that forming an incised cross-hatched pattern on the inner surface of the bore is known (see page 2, lines 18-20).

Regarding claim 9, Official Notice is taken that the use of computer numerically controlled (CNC) lathes is well known in the art of manufacturing.

Regarding claims 10-11, the specification notes that, “The steps of hard turning of the surface of the bore and the lateral surface of the blank can be carried out in either order ...” (page 9, line 15-16). Therefore, it would have been obvious to a skilled artisan to perform these steps in either order since it has no effect on the implementation of the invention.

Regarding claim 12, Official Notice is also taken that cubic boron nitride or ceramic cutting coated tools are well known in the machining arts to extend the life of the tool. See also Liu et al, Col. 5, lines 52+.

Regarding claim 13, Liu et al suggests that the hard turning of the surfaces can be carried out in a single operation. See Col. 8, lines 11-14 (disclosing “a turning operation”) (emphasis added).

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Regarding claim 14, it is inherent that the end face surfaces of the blank correspond to the end face surfaces of a cylindrical bearing roller.

Response to Arguments

3. Applicant's arguments filed December May 12, 2003, have been considered but are not found fully persuasive.

Applicant's IDS dated December 12, 2002 has been considered.

Applicant's arguments regarding Tani, Kavthekar and Girguis have been found persuasive.


Applicant's arguments with respect to claims 1-14, otherwise, have been considered but are moot in view of the new ground(s) of rejection.


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (703) 305-0240. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory M. Vidovich can be reached on (703) 308-1513. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

ebc 
June 30, 2003


DAVID P. BRYANT
PRIMARY EXAMINER